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## Results in Cases of Hip-Joint Disease treated by the Portable Traction Splint

*Without Immobilization, except during the  
Inflammatory Stage of the Disease.*

BY

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## RESULTS IN CASES OF HIP-JOINT DISEASE

TREATED BY

### THE PORTABLE TRACTION SPLINT

*WITHOUT IMMOBILIZATION,*

EXCEPT DURING THE INFLAMMATORY STAGE OF THE DISEASE.

BY LEWIS A. SAYRE, M. D.,

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In the last few years so many papers have been published on hip-joint disease, advocating absolute *immobilization* of the joint during the entire treatment of the case, and in many cases without traction, and some of them condemning the portable traction splint, which has yielded such excellent results in my hands, as well as in those of many others who have used it properly, that I have taken the trouble to look over my note-books and ascertain the results in the various cases of which I have record.

In some cases the recovery has been so perfect and complete, in reference to both form and motion, that the question has been raised whether the patients had ever been troubled with hip disease. It is on this account that I have selected only such cases to report as had been examined by other surgeons of the highest standing, and whose knowledge and ability to make a correct diagnosis would certainly be unquestioned in the professional world.

CASE I.—In August, 1877, while on a visit to London, I was requested to see J. C. O'C., an Irish boy of five years, in con-

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sultation with Mr. William Adams and Sir James Paget, who had been attending the lad, in connection with Dr. Quain, for disease of the right hip joint since April, 1877. The mother was an uncommonly healthy and vigorous woman of about thirty. The father, an unusually stout and robust man, had died of apoplexy.

The boy had fallen out of a brougham while driving on a hard road in Ireland in November, 1876, during his mother's absence, and the nurse had concealed this fact for some months. He gradually grew stiff in his gait, and then became quite lame. The lameness increased and the joint became very painful, especially at night, waking him out of a sound sleep with frequent paroxysms. The mother brought him to London to consult Dr. Quain, who called Sir James Paget and Mr. William Adams in consultation, and they all agreed in the diagnosis of *hip disease of the right side*, and confided him to Mr. Adams for treatment, Sir James Paget and Dr. Quain seeing him occasionally. Mr. Adams applied a stiff molded leather to the hip and a splint to the leg, with extension by weight and pulley, and forbade the child to walk—an imitation, or, as he said, "a modification of the American plan of treatment."

The case not progressing favorably, Sir James Paget became dissatisfied with the American plan, and I was called in consultation in August, 1877. There was no difference of opinion as to the diagnosis. We all agreed that it was an unmistakable case of hip disease in the first stage, rapidly advancing to the second stage. There were flexion of the thigh, abduction of the limb, eversion of the toes, and perfect immobilization of the joint from muscular rigidity, and the very slightest pressure on the trochanter, or upward from the knee or heel, caused the most exquisite pain. The *slightest* attempt at movement *without traction* was unbearable. But as soon as slight traction was made in the direction of the distorted limb, while the pelvis was held immovable, very slight motion could be made at the joint without pain.

We did not agree in the opinion as to the cause of the trouble. They were disposed to attribute it to the strumous condition of the boy, on account of the great disparity in the ages of his parents. But, as they were both in perfect health at the time of his birth, and the boy had always been in perfect health up to the time he was thrown from the brougham, I was disposed to attribute the disease to this accident, and not to any constitutional diathesis.

We also differed in our prognosis of the case. They considered recovery with ankylosis a very good result; and I contended that many patients recovered with good motion, and

sometimes with little or no deformity. I was therefore requested by Mr. Adams to take charge of the case.

No change was made in the mode of extension of the leg by the weight and pulley; but I removed the leather splint from around the thigh and pelvis, and, passing a handkerchief around the upper part of the thigh, attached it to a cord, with a weight and pulley to make *lateral traction* \* from the side of the bed, and fixed the body and well limb to a long splint, thus keeping the body in a horizontal position and absolutely at rest until the acute symptoms subsided and the limb was in proper position to apply a splint.

Mr. Ernst, Mr. Adams's instrument-maker, manufactured under my supervision a very perfect long splint, which I applied to the boy in the last of August, 1877. In a very few days he was able to walk on this splint, with his sound leg elevated on a high shoe, without any pain, and could sit down with but very slight inconvenience. This splint was used by day, and the weight and pulley extension at night, the nurse having been very carefully instructed as to the proper application of the instrument as well as the night extension. He returned to his home in Ireland in September, and Dr. Hobart, of Cork, applied the Maw's moleskin adhesive strips about every three months, or as often as necessary.

This long splint was worn for eleven months, when he had so far improved that my short hip splint, with double perineal bands, was substituted for it. With this short splint he was able to get about very much more comfortably, particularly in sitting down, as it gave full power to flex his knees, the lack of which is one of the objections to the long splint. He wore this splint about a year, and when I removed it, in the fall of 1879, he was perfectly well of the disease, with no perceptible deformity and quite free motion of the joint. The limbs were of equal length, but the right one was much atrophied from want of use.

He had a very competent nurse, who gave the limb massage and manipulation daily, carefully increasing the range of motion without exciting fresh inflammation, and in a few months the motions were as perfect in one joint as in the other, and have continued so. He was under treatment a little over two years.

\* As there has been considerable discussion as to priority in the application of lateral traction in hip-joint disease, I may say that on looking over my notes I find that I applied it to L. A. McC. in 1868 in the presence of Dr. L. M. Yale, this being the case to which I first applied a platform joint with abducting screw with a short splint, the original drawing of which, by Dr. Yale, I found in my note-book.

He is now nineteen years old, in perfect health, can run, jump, and undergo severe military drill for many hours as well as the average. He is perfect in form, can flex the thigh to an acute angle, and cross the foot over the thigh of the opposite side, as seen by the photographs. This last motion is very difficult to accomplish if there is the least rigidity about the hip joint. Most patients having recovered from hip disease, even with quite good motion of the joint and with but a very slight limp, yet can not cross the foot to the opposite side to tie their shoes, but always put their foot to the side and behind them in order to get at their foot. I therefore look upon this test as the best proof of perfect motion in the joint.

CASE II.—J. McC., aged four years, daughter of A. McC., Troy, N. Y., was sent to me in July, 1864, by Dr. Brinsmaid and Dr. Thorn, of Troy, who had been attending her for six months for a very painful trouble of her right hip, which was supposed to be rheumatic. As she made no improvement, Dr. Alden March, of Albany, was called in consultation and diagnosed hip disease in the second stage, rapidly progressing, and with very great constitutional disturbance. Dr. March thought the disease due to a fall the child had received the winter previous, and advised them to send her to me for treatment.

I saw her on the 9th of July, 1864, at the St. Nicholas Hotel in this city. She was rather small for her age, very pale and anaemic, exceedingly irritable, and almost all the time crying from pain when she was not under the influence of an anodyne, which had to be repeated frequently, especially at night. The limb was flexed forty-five degrees, *abducted*, and strongly rotated outward, with the toes everted. There was some fullness over the hip joint, which was exceedingly sensitive to the slightest touch, and the least pressure on it in any direction caused her to scream in agony, as did also the slightest attempt at motion when made without traction or extension. When, however, the pelvis was held still by an assistant and the limb was seized firmly, and slightly flexed, *abducted*, and rotated outward, then slight traction on the limb while held in this position gave her perfect relief from all pain, and she seemed happy. The instant the traction was removed she screamed in agony, and was only relieved by a repetition of the traction in the same line as at first applied while the pelvis was held still and free from movement.

*Diagnosis.*—Hip disease, second stage.

*Treatment.*—Extension in the line of the deformity, the line of traction to be daily changed until the limb was in normal position, then apply a short hip splint for daily exercise, and

extension by weight and pulley at night. In the mean time to apply a blister  $2 \times 4$  inches behind the trochanter, to be repeated if necessary. Messrs. Otto & Reynders measured her for my short hip splint, which they said was the smallest one they had ever made. I applied adhesive strips from the ankle to two inches above the knee, and secured them by a firmly applied flannel roller. To the lower ends buckles were attached for the purpose of making extension. The whole limb was raised on a pillow and slightly abducted; the body was also propped up by a chair behind the back to relax the psoas and iliacus muscles, the foot of the bed being elevated and a four-pound weight attached. In less than an hour the child was in a sound sleep, which the parents said had not occurred before for many months without an anodyne. The blister had a beautiful serous discharge in about seven hours, and dried up in about two days. It was repeated twice in the course of the next ten days. The line of traction was gradually changed, and in two weeks the leg was parallel with the other. I then applied my short hip splint with the single perineal band for counter-extension, and she was perfectly comfortable. The following day she was able to sit up in a chair, and after some little instruction was able to walk around the room on her crutches quite comfortably.

She returned to Troy that night by the steamboat, and as it was difficult for them to apply the night extension by weight and pulley in the berth on the steamer, I advised them not to remove the splint for that night, but allow her to sleep in it, which was done, and "she arrived at home the following day without any pain or inconvenience," as stated in a letter to me from Dr. Brinsmaid a few days after.

I received letters from Dr. Brinsmaid every few weeks during the summer and fall, stating that she was entirely free from pain and growing very rapidly; that he "had no occasion to change the plasters, as the splint was retained in position as I had left it, and that he increased the extension as the limb grew longer by keying out the splint a notch or two every few weeks as the case required."

In February, 1865, while attending the meeting of the State Medical Society in Albany, Dr. Alden Marsh and myself were invited to dine with Mr. McC. in Troy, and to see the great improvement that had taken place in his daughter's hip. Dr. Brinsmaid, of Troy, was also present at the dinner. We found the little girl running around the room with her crutches, in perfect health, and in very good shape; but when we stripped her for examination I was very much surprised to find the splint and bandages exactly as I had applied them in July, 1864,

nearly seven months before, the splint having never been removed during all that time, and the night extension by weight and pulley had never been applied. The extension had been kept up by keying out the splint occasionally, and as the adhesive plasters had remained *in situ*, as I had originally placed them, the traction was perfect.

Dr. Brinsmaid explained that the reason of his leaving on the splint at night was the fact that she had slept so comfortably with it on in the boat on her way home that he was afraid to remove it, fearing that he might not again be able to replace it in exactly the same position, and, as she had suffered so many months of intense pain before, and was so perfectly comfortable since it had been applied, he preferred to leave it, merely covering over the soiled bandages with a clean roller as occasion required, but never disturbing the original bandage or adhesive plaster.

This was to me an entirely new revelation, but, as she was so perfectly comfortable, I advised them to continue the same plan, but to send her to me as soon as I returned to the city, that I might make a new application of fresh plaster.

She was sent to the city on the 1st of March, 1865, and I removed the dressings, which, of course, were very much soiled; but the plasters were in exactly the position as originally applied in the preceding July, and, on carefully removing them, the scarf-skin came off with them, but left no abraded surface underneath. As the skin was not in a fit condition for the immediate application of the plaster again, I put her to bed with an extension from her foot for a few days until the skin, by the daily washing with alcohol, should be in proper condition for the reapplication of the Maw's adhesive plaster for the extension splint. On the 4th of March, 1865, the adhesive plasters, bandage, and splint were applied as in the first instance, and she returned to Troy. She wore this splint constantly, day and night, for two years and a half, and was then perfectly well. She had returned to the city four times during that period to have the plasters removed, and there was never any abrasion of the skin.

I saw her mother at the Mizzen Top Hotel, in Putnam County, in September, 1890, and she stated that her daughter was in perfect health, married, and had two children. Her form was perfect, the limbs were of equal length, and she had perfect motion of every joint.

CASE III.—D. E., son of one of New York's most distinguished physicians, both of whose parents were perfectly healthy, fell in 1869, when he was six years old, from a trapeze in Wood's Gymnasium, striking on the wooden floor on his left

hip and thigh, and driving a splinter of wood into the outside of the left thigh just below the trochanter major. This splinter of wood was cut out by Dr. George A. Peters the same afternoon, and the wound healed kindly in a short time.

Some two months after this accident he began to limp, and walked so stiffly and awkwardly that he was taken to Dr. Valentine Mott, who advised him to be put to bed, with a stimulating liniment applied to the joint. In a few weeks he seemed so much better that he got up and walked very comfortably, but, going down stairs, caught his left foot in the banister and fell down a flight of twelve steps, striking on the marble hall floor on the same left hip that had been previously hurt. Having disobeyed the orders of Dr. Mott as to perfect rest in bed, they did not inform him of this last accident, thinking that the trouble would soon subside by rest again in bed. But at the end of three weeks he had grown so much worse that Dr. Mott was called again to see him, and, finding him so much worse than at his last visit, some two months before, he called Dr. W. H. Van Buren in consultation, who at once diagnosticated it as a case of hip disease, and advised to have me see him. I saw him in consultation with Dr. Mott and Dr. Van Buren, and found him with the left thigh flexed, abducted, toes everted, and hip apparently ankylosed from muscular rigidity. The least attempt at movement without traction caused the most exquisite pain, as did pressure on the joint from any direction. Very slight traction, with flexion and eversion, relieved the pain, and permitted the slightest movement of the joint when the pelvis was held immovable.

*Diagnosis.*—Hip disease, second stage, with effusion in the joint, in which opinion we all agreed. Dr. Van Buren requested that I should take charge of the case, to which Dr. Mott cheerfully consented.

I placed him in bed with the foot elevated, applied a long splint to the right side of the body and leg, and applied adhesive plaster with weight-and-pulley extension to the left leg, and also applied traction from the upper and inner portion of the thigh by a weight and pulley at the side of the bed. A blister  $4 \times 4$  inches behind the trochanter was applied. A pillow was placed under the thigh and leg to accommodate the flexion of the limb, and the thickness of this support was gradually reduced as the limb became straighter, and in a few days it was down in the bed and parallel with the other limb. The blister had a very decided influence on the effusion in the joint, and was repeated three times in the course of a few weeks.

From the moment that the double traction was applied to the limb his pain was entirely relieved. No sedatives of any

kind were used from this time, although he had been compelled to resort to them every night for some time previous to the application of the traction. He was kept rigidly in this horizontal position, with the traction, for a little over three months, when he was so much improved that I then applied to him my short hip splint, with which and a pair of crutches he was able to walk about during the day, while the extension was continued at night by the weight and pulley. The splint was reapplied every few months as the plaster became loose, and was worn for nearly two years, when he was entirely cured, and had quite good motion of the joint, the limb was considerably atrophied, but apparently of equal length with the other.

The motions gradually increased with exercise and the limb developed until it became in time as large as the other, and he was the champion athlete of Columbia College, having won a mile-and-a-quarter run in 1879. He is now perfect, as seen in photograph.

CASE IV.—In December, 1864, I was requested to meet Dr. Naudain, of Westchester, in consultation with Dr. Valentine Mott, to examine the youngest son of Mr. G. M., of Morrisania. He was a lad of four years and six months, rather delicate in appearance, and apparently suffering great pain on the least movement in any direction, but more especially if any movement was made of his right lower extremity, which was slightly drawn up and abducted, but rigidly fixed by muscular contraction. There seemed to be some fullness around the hip joint, but no distinct fluctuation could be detected. The least pressure or motion of the joint caused him to scream violently; but when the pelvis was held, and slight traction made on the limb in the line of flexion and abduction, he was almost immediately relieved.

The boy's father was very vigorous and robust, but suffered from rheumatism and gout. The mother was very delicate and suffering from phthisis, from which she eventually died.

The boy, although delicately built, had always been very active and venturesome. In the early spring of 1864 he had climbed upon the stone wall of the garden to pick some lilac flowers, and in breaking off the branch had lost his balance and fallen about four or five feet into a pile of stones. He cried very bitterly for some time, but the next day seemed as well as ever, and the accident was forgotten. After a few weeks the mother noticed that he was a little stiff in the morning and favored one leg when standing, but in a few hours he would run about as before without any complaint of pain, and she therefore attributed it to "growing pains" and gave no attention to it until

later in the fall, when his lameness became so much worse that Dr. Naudain was again called to see him.

As the father was a martyr to rheumatism and gout, the doctor thought the boy had inherited the diathesis, and treated him accordingly. But after some weeks, as he did not improve, Dr. Mott was called in consultation and diagnosticated the case as one of hip disease, and advised them to place him under my treatment.

I saw him the following day in consultation with Dr. Mott and Dr. Naudain, with the symptoms already described in this paper, and of course confirmed the diagnosis of Dr. Mott. I applied traction to his limb in the line of the deformity by means of adhesive plaster and weight and pulley, and also lateral traction from the upper part of his thigh by a handkerchief around the limb attached to a weight by the side of the bed, and applied a blister  $2 \times 2$  inches behind the trochanter.

As soon as the traction was *properly* adjusted he fell asleep without any opiate, which the mother said he had not done for some months. He was kept in his bed a little over two months, Dr. Naudain changing the line of traction as required, until his limb was perfectly straight at the pelvis and parallel with the other. I then applied my short hip splint, and in a few days he could walk with the aid of crutches very well. At night the splint was removed, and the extension applied by weight and pulley. The splint was reapplied every few months, as the adhesive plaster became loose, and was worn constantly, except at night, for a little over two years. At the end of two years and a half he was perfectly well, and had quite free motion of his joint. This gradually increased until it became perfect, and has remained so.

Some two years ago, when I first thought of preparing this paper for the meeting of the Orthopædic Society in Philadelphia, I wrote to him to send me his photograph in the different positions I have described, in order to illustrate the perfect motion of the joint. I received no reply, and was then taken very ill, and the paper was not completed. Some months after I received the following letter, and in a few days the accompanying photographs.

GLENWOOD SPRINGS, COLORADO, September 9, 1890.

MY DEAR DOCTOR: Your letter was delayed some time in reaching me by being misdirected, and consequently going to the Dead-letter Office.

I have had photographs taken as you wished, and they will be sent you by the photographer. I had to have each position

taken right and left, for I do not know which leg was injured. I do not know just how old I was, nor what kind of splint or brace I wore. I am very well and athletic, riding on bucking horses, and using all my limbs and muscles with absolute ease and comfort.

Hoping the photographs will be satisfactory, and with much love, I am                    Your grateful friend,                    R. M.

I saw him in January, 1892, on his way to Europe, and he was perfect in form and motion.

**CASE V.**—L. H., aged thirteen, Buffalo, N. Y. Father and mother apparently healthy; an aunt died of phthisis, and grandmother had Pott's disease. She was brought to me on April 17, 1886, by Dr. Jewett, of Buffalo. Menstruation began at eleven, has always been rather profuse, and the patient is now quite anæmic.

In November, 1885, complained of great pain in right hip. Shortly before that her cousin had given her a severe twist by catching her around the neck and pulling her backward. For some time after this she complained of great pain in her back. For the past two months has had nocturnal startings. Six weeks ago was put to bed, and had blisters applied over and behind the trochanter, but no extension. Dr. Kirtland, of Utica, and Dr. F. B. Johnson, of Towanda, then saw her in consultation with Dr. Jewett, and they all diagnosed hip disease of the right side, with probably sacro-iliac disease of the same side.

She was brought to the city, and I saw her in consultation with Dr. Jewett on April 17, 1886. Very limited motion of right hip from muscular rigidity; great pain on compression, both longitudinally and laterally; also great pain over the right sacro-iliac junction, and pain on lateral pressure of the ilia, and the body strongly bearing to the *left*; thigh flexed, abducted, and fixed by muscular rigidity, and the toes everted.

*Diagnosis.*—Hip disease, right side, second stage, and sacro-iliac disease of right side.

*Treatment.*—Put to bed, with weight-and-pulley extension to reduce the limb to the normal position. From this time all night spasms ceased, and she slept quietly without any narcotic, although she had been compelled to resort to them once or twice every night for some weeks before.

*May 17, 1886.*—The limbs had become so nearly parallel that the long hip splint was applied, and, by the aid of crutches and a high shoe on the left side, she was able to walk quite comfortably, and went back to Buffalo.

*October 4th.*—Returned, very anæmic from profuse menor-

rhagia. Tenderness over the trochanter and just above; deep fluctuation posterior to the trochanter.

*10th.*—Put on new adhesive plaster, and applied the actual cautery over the tender spot on the trochanter, and also over the sacro-iliac junction on right side, which was tender.

*December 10th.*—Wounds from actual cautery entirely well. The abscess which seemed to be forming above and behind the trochanter has disappeared, and no fluctuation can be felt.

*January, 1887.*—The hip is much less tender; opened the knee joint in splint to allow the knee to be bent while sitting.

*November.*—Very greatly improved; is free from all pain; can flex, extend, adduct, abduct, and rotate the leg almost as perfectly as the other. Removed the plasters from the leg and applied the splint, with a box in the sole of the shoe and flexion at knee joint when sitting.

This was worn until August, 1888, when she was found to be perfectly well, and all treatment was abandoned. The limb was very nearly of the same length as the other, but not so large in circumference. The motions in the joint were almost perfect and complete.

*June, 1890.*—Is in perfect health, and has no difficulty in performing any motion of the joint, as seen by photographs taken by Dr. Reginald H. Sayre, January, 1890.

CASE VI.—F. N., aged nineteen years, 18 West Twenty-eighth Street. On October 21, 1872, I was requested by Dr. Barker to see Mr. F. N., aged nineteen, who had been sent home from Harvard University by Dr. Bigelow, of Boston, on account of his suffering from hip disease, which prevented him from attending to his college duties. I fully confirmed the opinion of Dr. Bigelow, which greatly disturbed his mother, as she could not believe that he could have any such serious trouble, because he had always been so strong and healthy, and she did not like him to give up his college course, and she therefore wished Dr. Van Buren to be called in consultation, hoping that he might differ with Dr. Bigelow and myself.

Dr. Van Buren saw him with Dr. Barker and myself on the 22d of October, 1872, and, after a most careful examination, pronounced it hip disease, first stage, far advanced toward second stage. The limb was *apparently* longer, flexed, abducted, and rotated outward, and firmly fixed by muscular rigidity, apparently ankylosed. The slightest pressure on, or the least motion of, the joint caused intense pain and made him cry severely.

In the early spring of that year, while running across country at Lenox, he had slipped one foot into a deep ditch, while the other leg was stretched out sideways on the ground. He

was considerably hurt, and kept his bed for two weeks, at the end of which time he thought himself well, yet there remained a slight pain, which, in fact, never entirely disappeared. In August he again hurt his hip in Newport, slipping on the grass, which confined him to his bed about ten days. He afterward went to Harvard, and in getting off a horse-car slipped, hurting his hip very badly.

Dr. Bigelow, of Boston, was then called to see him, and after attending him some weeks told him he had confirmed chronic hip disease and advised him to return home.

After Dr. Van Buren had confirmed the diagnosis of Dr. Bigelow and myself, he was placed by Dr. Barker under my treatment. I applied the extension by weight and pulley on October 29, 1872, with a blister  $3 \times 4$  inches behind the trochanter. This was repeated three times during the next two months, during which time he remained constantly in bed.

*December 24, 1872.*—Applied my long hip splint and put a high shoe on his sound foot, and by the aid of crutches he could walk quite comfortably. The plasters were reapplied every few months as occasion required until the first of May, 1874, when the splint was removed and has not again been re-applied.

The motions of the joint were limited at the time, but by daily massage and manipulation they gradually increased, and in a few months were as perfect as in the other limb, and have remained so. His limbs are of equal length, and every motion of the joint is perfect, as seen in these various photographs taken by my son, Dr. Reginald H. Sayre, March 8, 1892.

**CASE VII.**—S. C. H., aged seven years; healthy parents and family. Child an unusually fine boy up to October, 1873, when he had a fall while jumping about on the floor; cried a good deal from the injury, saying his hip was hurt. In a few days after, a very severe attack of scarlet fever prostrated him, a large abscess under left jaw formed, and was opened. Convalescence was quite slow. After the abscess of the neck ceased to discharge he complained of his left hip and knee. Was treated for rheumatism for some time, and then by weight and pulley *incorrectly* applied. I found him, December 1, 1873, confined to bed in a very feeble state, and applied weight and pulley *correctly* by *simply modifying the line of traction*, which gave instant relief. On January 10, 1874, he was brought before the class at Bellevue and my short hip splint applied.

*January 22d.*—Boy up, feeling much relieved. Not confined to bed a day since the splint was applied.

*February 20th.*—Splint readjusted to-day. Boy in most excellent condition. No pain or tenderness on manipulating the

joint; walks readily with no crutch. Has not suffered a day since the splint was applied.

*January 3, 1875.*—Perfectly well, with no deformity, and all the motions of the joint quite free and normal.

*January 22, 1886.*—Mr. H. called on me to present his splint and crutches for some other case. He is in perfect health, five feet six inches in height, weight one hundred and thirty pounds. Has every motion of the hip joint as perfect as the other. Can ride horseback and do full labor. The left limb is half an inch shorter than the right, and the thigh three fourths of an inch smaller than the other, but this defect can not be detected without careful measurement. Cure perfect.

*February 19, 1890.*—Mr. H. called to-day to ask whether it would be advisable to join a bicycle club. Has ridden at different times, but not steadily. More careful examination shows that motion was limited in outward rotation. Can cross the knees, but can not put the foot on the other knee and drop the knee to right angle. Abduction also limited. He was advised not to try the bicycle riding.

I am very glad this patient is here this evening, that I may show the difference between what I call a *perfect* cure, as in the case of Mr. E., and a *good* cure, as in the present instance.

I had recorded the case as a perfect cure, as he could flex and extend the hip joint, cross his knees, and walk without limping with an elevated sole, but, on later examination, find that he can not put the left foot in his lap, and I have therefore included him in the list of good instead of perfect cures.

In the cases which I have reported in full this evening the patients had undoubted morbus coxarius, as diagnosed by surgeons of marked ability, in addition to my own testimony, and yet they have all recovered with useful, movable hip joints, as seen this evening, in spite of the fact that several of them were of tubercular families, and prove the fact that absolute immobilization during the entire progress of the disease is not always essential to perfect recovery.

I have had my note-books looked over by Dr. H. W. Frauenthal and Dr. B. F. Parish, who have kindly prepared a synopsis of the cases therein recorded, and to whom I wish to return my thanks for their arduous labors.

I wish the time at my disposal had been sufficiently long

to render the table more complete by recording the cases complicated by abscesses and those complicated by disease of other joints, but, as the chairman had requested the paper for this meeting, I have gathered together such facts as I could in the time at my disposal, and hope at some future time to present these statistics more fully elaborated.

Many of the cases on my books have been seen by me only once or twice in consultation with other physicians, and these have not been included in the record; and in other cases it has not been possible to ascertain the ultimate result; but the cases as recorded in my books I have collected and here present to you. The cases in which excision of the hip joint was practiced have not been included, as they have already been published, and many of these were not in a condition to allow anything short of radical operations at the time when I first saw them.

*Statistics of 407 Cases of Morbus Coxarius treated between 1859 and 1889, exclusive of Exsections.*

Of these there were in the

First stage.....	118
Second stage.....	119
Third stage.....	82
Not mentioned.....	88
Total number of cases.....	407

*Results.*

Cured, motion perfect.....	71
"    "    good.....	142
"    "    limited.....	83
"    "    ankylosed .....	5
Unknown.....	78
Under treatment.....	14
Abandoned treatment.....	3
Discharged.....	2
Died of exhaustion.....	2
"    "    phthisis .....	1
"    "    pneumonia.....	1
"    "    tubercular meningitis.	5
Total deaths.....	9
Total number of cases.....	407

*Cases in which I know the Result and the Kind of Splint worn between 1859 and 1889, excluding Cases under Treatment.*

Cures with perfect motion :

Long splint.....	19	= 21.59 per cent.
Short " .....	54	= 28.12 " "
	73	

Cures with good motion :

Long splint.....	34	= 38.63 per cent.
Short " .....	86	= 44.79 " "
	120	

Cures with limited motion :

Long splint.....	29	= 32.95 per cent.
Short " .....	49	= 25.52 " "
	78	

Cures with ankylosis :

Long splint.....	3	= 3.40 per cent.
Short " .....	1	= 0.52 " "
	4	

Deaths :

Long splint.....	3	= 1.56 per cent.
Short " .....	2	= 1.04 " "
	5	

Treated with long splint.....	88	
" " short " .....	192	
	280	

Total number of cases..... 280

I have had no personal experience in the treatment of hip disease by perfect immobilization, but had to exsect in one case in which the joint had been *immobilized* by a plaster-of-Paris cast from axilla to foot for *two years*. The first cast being applied in the very early stage of the disease, the limb was retained perfectly straight by the plaster casting; but as *no traction* was used, the reflex muscular action caused constant pressure of the head of the femur against the acetabulum, causing absorption of the head of the femur and perforation of the acetabulum. An abscess forming inside of the pelvis peeled off the periosteum and opened above Poupart's ligament. As there was not the usual deformity of

hip disease, and no pain on upward pressure of the limb, the surgeons in attendance did not recognize it as hip disease, and I was called in consultation. I gave as my opinion that the joint was already destroyed, and that *exsection* was the only chance for saving the child's life.

Dr. Krackowizer was then called in consultation to decide the question, and, confirming my diagnosis, I exsected the joint in the presence of Dr. S. Sabine, Dr. Krackowizer, Dr. Yale, Dr. Markoe, and others. The head and neck of the femur were absorbed and the acetabulum perforated.

The operation was a success, and, eight months after, I saw the boy riding on horseback in the mountains of Virginia.

He went back to Texas, and two years after was attacked with nephritis and died from suppuration of the kidney.

In 1859 I was requested to go to Frankfort, Ky., to see a young lad suffering from hip disease of three years' standing. As I could not leave the city at the time, I requested my friend Dr. Baur, then of Brooklyn, to go in my place. The doctor divided the contracted muscles, straightened the limb under chloroform, and placed the boy in the wire breeches, which made him perfectly comfortable. In fact, he was so comfortable that Dr. Rodman, his attending physician, was afraid to remove him from the wire breeches, fearing that he would not again be able to replace him as comfortably as he then was.

He was carried down on the Kentucky River every day for a row, and was perfectly free from pain from the time that Dr. Baur placed him in the cuirass. He was not removed from the wire breeches for nine months, and when he was taken out the disease was perfectly cured, but the joint completely ankylosed, as were also the hip of the opposite side, both knees, and both ankles, as well as the entire lower portion of the spine. In fact, he could only move his arms and neck. He remained in this solidified condition till his death some years later.

In 1872 a girl was brought to me from Hamilton Junction, New Jersey, with *double* hip disease of eighteen months' standing. The right, third stage; the left, probably the same. After gradually straightening the limbs, she was placed in the wire cuirass.

The limbs were removed from the cuirass occasionally, and slight motion was given to all the joints, while the limb was kept extended by traction with the hand.

Her general health improved greatly, and in six months she returned home in the cuirass, the mother having been carefully instructed as to the manipulation and dressing of the limbs. I received a letter from the mother in the latter part of 1873, saying that "she had entirely recovered, with good motion of both legs and no deformity."

Four years later, in March, 1877, the father called on me and said that "Mary was entirely well and very stout, but that the joints were stiff," as he found it too much trouble to take her out of the splint so often, but that he was perfectly delighted and satisfied with the result. I was not. My impression is that, had the limbs been occasionally removed from the cuirass and the joints slightly moved short of the amount that caused pain, this ankylosis would not have taken place.

DR. SAYRE'S ARTICLE ON HIP-JOINT DISEASE.



c



b



a

CASE I.



a



c



b

CASE III.



c



b



a

CASE IV.—RIGHT.



c



b



b

CASE IV.—LEFT.



a

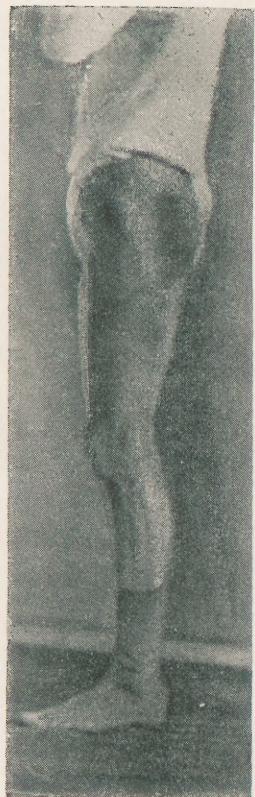


b



c

CASE V.



a



b



c

CASE VI.





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